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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,043	04/05/2006	Koichi Mikami	920_075	5958

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EXAMINER	
INYARD, APRIL C	
ART UNIT	PAPER NUMBER
4152	
MAIL DATE	DELIVERY MODE
12/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,043	MIKAMI ET AL.	
	Examiner	Art Unit	
	APRIL C. INYARD	4152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04-05-2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 4, 8, 16 and 23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 8, 16 and 23 recite the limitation "said antistatic layer" in line 3. There is insufficient antecedent basis for this limitation in the claims as Claims 4, 8, 16, and 23 depend from Claims 1, 5, 11 and 18, respectively and these claims do not contain an antistatic layer.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (US Patent 6,383,620 B1) in view of Nakamura (US Pub 2001/0035929 A1) and Feiring (US Patent No. 6,593,058 B1).**

(Claims 1-2, 5-6, 11, 17-18 and 24) Aoyama and Nakamura teach an anti-dazzling [anti-glare; anti-reflection] film structure substantially as claimed:

Layer of Instant Claims	**Aoyama ('620)**	**Nakamura ('929)**
Anti-dazzling film (transparent support)	acrylic; triacetylcellulose *(Col 9, lines 21-26)*	triacetylcellulose *(Fig. 1, layer 2; par [0003])*
Claims 1, 5, 11 and 18: • Anti-dazzling layer comprising acrylic resin • fine plastic particles • a copolymer comprising (meth)acrylic acid repeating units containing at least one	• acrylic resin and a fluorine-containing polymer coating *(Col 3, lines 56-57)* • particles of metal oxides *(Col 12, lines 20-26)* • tetrafluoroethylene-perfluoromethyl vinyl ether copolymer and fluorine-containing alicyclic	• anti-glare [anti-dazzling] layer comprising an acrylic resin *(Fig. 1, layer 4; par [0072] and [0075])* • with resin matt particles (6) dispersed therein *(Fig. 1, element 6; par [0082])* • a copolymer comprising (meth)acrylic acid repeating

perfluoroalkyl group and (meth)acrylic acid repeating units having at least one bornane ring **Claims 11 and 18:** • and a curing composition comprising light transparent ionizing radiation curing polyfunctional resins at least one of which comprises a trifunctional acrylic resin	polymers *(Cols 11-12 lines 67 and 1; Note: alicyclic is interpreted as including bornane-based ring structures)* • when a substrate is made of an acrylic resin, a film comprises an acrylic polymer *(Col 5, lines 2—21)* including a trifunctional acrylic resin *(Col 7, copolymers of compounds of Formula III, lines 17-43, e.g. pentaerithritol tri(meth)acrylate)*	units containing at least one perfluoroalkyl group *('929, par [102], [104-105])* • compound used in the anti-glare layer or the hard coat layer…preferred the binder polymer has a cross-linking structure *(par [0068-0069])* including trifunctional acrylic resins *(par [0072], e.g. pentaerythritol tri(meth)acrylate)* where polymerization of these monomers can be conducted by ionization radiation *(par [0074]; Claim 9)*
Low-refractive index layer having a lower refractive index than the refractive index of the anti-dazzling layer		• low refractive index with a lower refractive index than the anti-dazzling layer *(Fig. 1, layer 5; par [0038])* comprising an acrylic resin with a perfluoroalkyl group having 8 or more carbons *(par [102] heptadecafluoro-1,1,2,2-tetradecyl)triethoxysilane))*

With respect to the **low refractive index layer**, Aoyma ('620) teaches an anti-dazzling film for constituting an antireflection film but does not specifically disclose a low-refractive index layer provided on the anti-dazzling layer.

However, at the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the anti-dazzling film structure taught by Aoyama ('620) by disposing the low-refractive index layer having a lower refractive index than the anti-dazzling layer taught by Nakamura ('929) on top of the anti-dazzling layer because adjusting the refractive index of the low refractive index layer disposed on top of the anti-dazzling layer to be lower than the anti-dazzling layer enables sufficient anti-reflection performance and scratch resistance, thereby providing preferable results *('929; par. [0096])*.

With respect to the acrylic resin of the anti-dazzling layer comprising a copolymer of (meth)acrylic acid repeating units containing at least one perfluoroalkyl group having **8 or more** carbon atoms and repeating units having at least one **bornane** ring, the anti-dazzling film compositions taught by Aoyama ('620) and Nakamura ('929) refer to a light transparent resin comprising an acrylic resin comprising perfluoroalkyl groups and bornane ring structures (see table above), but do not particularly disclose the number of carbon atoms on the perfluoroalkyl group.

Aoyama ('620) does disclose the surface activity importance of fluorine-containing copolymers in increased water- and oil-repellency and anti-smudging *('620; Col 11, lines 24-27)*; and Nakamura ('929) teaches that compounds with too much fluorine content may lack cohesive power and thereby be insufficient in abrasion-resistance needed for the film layer disposed on the outermost surface of a display *('929; par [0005])*.

However, Feiring ('058) teaches a fluorine-containing copolymer that includes acrylic and methacrylic acid wherein the fluoroalkyl group contains from **1 to 10 carbon atoms** *('058; Col 9, lines30-31 and 39, Rf group contains 1 to 10 carbon atoms)* and the fluorine-containing copolymer further comprises a repeat unit derived from various compounds including **norbornenes** *('058; Col 10, lines 55-64, structure H),* **bicyclo[2,2,2]oct-2-ene** *('058; Col 11, lines 1-8, structure I)*, **olefins** *('058; Col 11, lines 20-40, Structure K)*, **bornane** *('058; Col 11, lines 43-65, Structure L).*

At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the light transparent acrylic resin of the anti-dazzling layer taught by Aoyama ('620) and Nakamura ('929) to include the 8 or more carbon-atom containing perfluoroalkyl group and repeating units having at least one bornane ring taught by Feiring ('058) because the fluorine-containing copolymer taught by Feiring exhibits high transparency and resilient surface characteristics (e.g. etch resistance) *('058; Abstract)* which are useful as base resins for photoresists and many other applications *('058; Col 1, lines 15-16)* because key characteristics of these copolymers are that: (1) the presence of polycyclic repeat units is critical for resilient surface characteristics and high glass transition temperatures for maintenance of dimensional stability and (2) fluorine-containing repeat units are critical for high optical transparency *('058; Col 6, lines 24-41)*. Furthermore, Aoyama ('620) and Nakamura ('929) disclose the claimed invention except for the particular acrylic resin composition for the anti-dazzling layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the acrylic copolymer resin taught by Feiring ('058), since it has been held to be within the general skill of a worker in the art to select a known material on the basis of

its suitability for the intended use as a matter of obvious engineering choice. *In re Leshin*, 125 USPQ 416.

(Claims 2, 6, 17 and 24) Aoyama (‘620), Nakamura (‘929) and Feiring (‘058) teach the anti-dazzling film according to Claims 1, 5, 11, and 18 (see above).

Aoyama (‘620) teaches the film comprises fine metal oxide particles but fails to particularly disclose that the particles are plastic light transparent particles of two or more types.

However, Nakamura (‘929) discloses two or more different kinds of particles may be used in combination *('929; par [0082], e.g. resin particles such as cross-linking acrylic, styrene, melamine; par [0084]).*

At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the anti-dazzling layer taught by Aoyama ('620) with the light transparent plastic particles taught by Nakamura (‘929) because such particles significantly contribute to the internal scattering of light and subsequent anti-reflectance [anti-dazzling] properties, where anti-dazzling layers without such particles have a great amplitude of reflectance *('929; par [0067]).*

(Claims 12-14 and 19-21) Aoyama (‘620), Nakamura (‘929) and Feiring (‘058) teach the film according to Claims 11 and 18 (see above).

With respect to **Claims 13 and 20**, Aoyama (‘620) does not specifically disclose that the light transparent curing polyfunctional resin comprises at least one **bifunctional** acrylic resin in addition to the trifunctional acrylic resin.

Nakamura ('929) discloses that the binder for the anti-dazzling layer may contain copolymers of monomers having at least two ethylenically unstaurated groups *('929; par [0070] and [0072], e.g. ethyleneglycol di(meth)acrylate, pentaerythritol tri(meth)acrylate, trimethylolpropane tri(meth)acrylate, trimethylolethane tri(meth)acrylate)* and that a cross-linking structure may be introduced by using a multi-functional epoxy compound *('929; par [0077-0078])* or through other [bifunctional] acrylic monomers *('929; par [106], e.g. glycidyl methacrylate).*

Furthermore, with respect to **Claims 12 and 14** and **19 and 21**, Nakamura ('929) teaches that the proportion of each of the foregoing monomers which is used to form a fluorine-containing copolymer before curing, the monomer for giving a cross-linking functional group [bifunctional acrylic resin] is preferably in the range of 1 to 30% by weight, and the other monomers used in combination with them [trifunctional acrylic resin] is preferably in the range of 0 to 70% by weight *('929; par. [108]).*

At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the film anti-dazzling layer curing resin composition taught by Aoyama ('620) with the light transparent curing polyfunctional resin composition **(Claims 13 and 20)** and specific weight percentages of bifunctional and trifunctional acrylic resins **(Claims 12, 14, 19 and 21)** taught by Nakamura ('929) because addition of bifunctional monomers to trifunctional acrylic resins can introduce a crosslinked structure after it is copolymerized *('929; par [106])* and it is replete in the art that the degree of crosslinking can affect the physical properties of a polymer (e.g. brittleness/hardness). Moreover, it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such

as the relative weight percents of bifunctional to trifunctional acrylic resins in the curing resin through routine experimentation, especially given the teaching in Nakamura ('929) regarding the desire to formulate a layer with the respective resins within the presently claimed weight percent ranges. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

(Claims 3, 7, 15 and 22) Aoyama ('620), Nakamura ('929) and Feiring ('058) teach the film according to Claims 1, 5, 11 and 18 (see above).

Aoyama ('620) further discloses that it is preferable to add antistatic agents to the acrylic resin layers (which contain ionizing radiation curing resin, see above). As Aoyama teaches addition of the antistatic agents to all acrylic resin layers, Aoyama therefore teaches inclusion of electrically conductive particles *('620; Col 12, lines 20-23; lines 28-34, antimony-doped tin oxide, indiumtinoxide)* for ensuring continuity between the antistatic layer and the outermost surface of the anti-dazzling film.

Aoyoma, does not specifically teach an additional antistatic layer in the anti-dazzling film structure.

However, Nakamura ('929) teaches an additional ionizing radiation curing dipentaerythritol hexacrylate hardcoat layer disposed between the triacetylecellulose film and the anti-dazzling layer *('929; Fig. 1, layer 3; par [0003])* that is an antistatic layer. Nakamura discloses that the components of this antistatic hardcoat layer are the "same as those of the anti-glare layer except no transparent resin matt particles are used" *('929; par [0095])*, therefore the anti-static, like the anti-glare layer, contains fine particles of metal oxide electrically conductive

particles *('929; par [0087], antimony; par [0088], indium titanium oxide, an antistatic conductive particle)*.

At the time of the invention, it would have been obvious to one having ordinary skill in the art to include the additional antistatic electrically conductive layer taught by Nakamura ('929) in the anti-dazzling film structure of Aoyama ('620) because this additional layer has its own refractive index and therefore can be modified to have an impact on the overall anti-reflectance properties of the anti-dazzling film *('929; par [0005])*.

(Claims 4, 8, 16 and 23) Aoyama ('620), Nakamura ('929) and Feiring ('058) teach the film according to Claims 1, 5, 11 and 18 (see above).

Aoyama ('620) further discloses that organosilane agents such as fluoroalkoxysilanes may be added to the acrylic resin to prevent the accumulation of dusts *('620; Col 12, lines 20 and 24)* where the alkoxysilane base "impart[s] the antistatic properties to fluorine-containing layers since such agents hardly increase the refractive index and have less adverse influences on the antiglare effects" *('620; Col 12, lines 58-65)*. Aoyama moreover teaches that silanes may be used as coupling agents to improve adhesion between layers *('620; Cols 14-15, lines 65-66 and lines 1-5, phenylsilane, minosilane, epoxysilane, acrylsilane)*. The Examiner notes that the alkoxysilanes and coupling-agent silanes, taught by Aoyama are representative of the general formula of the instant claims.

Likewise, Nakamura ('929) discloses use of an organosilane in the acrylic resin containing layers *('929; silane compound containing a perfluoroalkyl group, e.g.*

heptadecafluoro-1,1,2,2-tetradecyl)triethoxysilane) as well as silane based coupling-agents *('929, par [0116])* represented by the general formula of the instant claims.

(Claims 9-10 and 25-31) Aoyama ('620), Nakamura ('929) and Feiring ('058) teach the film according to Claims 1, 5, 11 and 18 (see above).

Aoyama ('620) further discloses that the effects of the anti-dazzling film are particularly remarkable when applied to polarizer plates, protective plates of CRT, liquid crystal displays, plasma displays, back-lighting displays, and inner surfaces of protective covers of illuminations *('620; Col 14, lines 47-65)*.

Likewise, Nakamura ('929) teaches use of the anti-dazzling film to protect a polarizing layer of a polarizing plate for use in an image display device such as a liquid display, plasma display, electroluminscence display, and a cathode-ray tube display, where the anti-dazzling film is disposed at the outermost surface of the display (screen) side of the device *('929; pars [0063] and [0137])*.

Aoyama ('620) and Nakamura ('929) disclose that the anti-dazzling film of the instant claims and use of the film in a polarizing plate, back-lighting display, and image display device. Therefore use like materials in a like manner as claimed, it would therefore be expected that the anti-dazzling film in the application of a polarizer plate, image display device and back-lit image display device will have the same characteristics claimed, particularly the anti-reflectance and light-transparency characteristics, absence a showing of unexpected results.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Miyatake et al. (US Publication 2003/0076596) teaches a particle containing antireflection film having a hard coat layer on a transparent substrate with a polysiloxane fluoroalkyl structure.

b. Kodachi (JP 09043848 A) teaches a repeating acrylate resin material with a perfluoroalkyl group having 8 or more carbons *('848, Formula 2, Claim 6, p = 0-5 and r = 0-5, therefore carbons can range from 3-11)* and repeating units having at least one bornane ring *('848, Claims 6-7, said alicycle is norbornane or its derivatives; par [0013], Formula 4(2); par [0008]—the resin which constitutes the material may be an independent polymer or may be a copolymer, the repetition unit which forms a copolymer with the acrylate system repetition unit which has both substituents in the case of the latter).*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to APRIL C. INYARD whose telephone number is (571) 270-1245. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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